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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/674,648	01/05/2001	Bodo Furchheim	7054-101XX	1304

7590

09/09/2003

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EXAMINER

KIM, CHONG HWA

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/674,648

Applicant(s)

FURCHHEIM ET AL.

Examiner

Chong H. Kim

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Aug 15, 2003 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gear wheel or sprocket wheel produced in a separate method being placed in the internal high pressure forming tool and being secured by the internal high pressure forming step frictionally and/or in an interlocking manner as recited in claim 6; the production of the thickened and/or tapered ends of the cam shaft internal gear teeth and/or a thread being produced by round kneading as recited in claim 7; and the ends of the tube comprise bearing faces, drive and/or control elements and internal and/or external screw threads as recited in claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Art Unit: 3682

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The substitute specification filed Oct 18, 2002 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because: the applicant has not stated that there is no new

Art Unit: 3682

matter and failed to provide with a marked-up version. (This notice was also included in the Office action mailed on Dec 18, 2002.)

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 8-12, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ebbinghaus et al., U.S. Patent 5,259,268.

Ebbinghaus et al. shows, in Figs. 1-7, a method for the manufacture of a cam shaft from a tube 12, the cam shaft having bearer rings 14 attached thereto, the method comprising the following steps;

producing bearer rings in correspondence with an outline of the cams on the cam shaft, the bearer rings having the necessary hardness, strength, and wear resistance, in a separate method;

placing the tube and the bearer rings in a high internal pressure forming tool;

applying axial forces to the ends of the tube;

applying a medium under a high internal pressure to the tube, whereby the tube is expanded in defined region to form hollow cams (as shown in Fig. 2) and whereby the bearer rings are attached to the tube of the sides of the cams in a frictional and interlocking manner by expansion of the tube;

Art Unit: 3682

(inherent since the specification states that the tube is placed in a closed mold and applied with the internal pressure and axial forces as described in column 3, lines 5-17);

characterized in that in a step prior to such high internal pressure forming, regions that lie at the end of the tube outside the regions in which the cams are seated, are upset that same are increased in thickness for forming different functional elements 16 and 18;

characterized in that between the cam shaft ends in a step prior to internal high pressure forming bearing faces and the eventual region where the cams are to be seated, are produced by round kneading and by reducing the diameter in this part to the desired size (see Fig. 1);

characterized in that between the cams bearing faces are produced by internal high pressure forming by expanding the tube;

characterized in that the bearer rings are hardened in a known manner prior to being placed in the internal high pressure forming tool;

characterized in that the bearer rings have an even wall thickness;

characterized in that the thickness of the bearer rings is variable, the thickness being greatest near the cam tip;

characterized in that the bearer rings consist of sintered metal, or plastic, or ceramic material;

characterized in that the tube consists of aluminum or titanium; and

characterized in that the bearer rings are hardened prior to application on the formed cams.

Art Unit: 3682

6. Claims 1-10, 13, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki, U.S. Patent 4,660,269.

Suzuki shows, in Figs. 1-12, a method for the manufacture of a cam shaft from a tube 2, the cam shaft having bearer rings 3 attached thereto, the method comprising the following steps;

producing bearer rings in correspondence with an outline of the cams on the cam shaft, the bearer rings having the necessary hardness, strength, and wear resistance, in a separate method;

placing the tube and the bearer rings in a high internal pressure forming tool 20;

applying axial forces to the ends of the tube;

applying a medium under a high internal pressure to the tube, whereby the tube is expanded in defined region to form hollow cams and whereby the bearer rings are attached to the tube of the sides of the cams in a frictional and interlocking manner by expansion of the tube;

characterized in that in a step prior to such high internal pressure forming, regions that lie at the end of the tube outside the regions in which the cams are seated, are upset that same are increased in thickness for forming different functional elements 6;

characterized in that between the cam shaft ends in a step prior to internal high pressure forming bearing faces and the eventual region where the cams are to be seated, are produced by round kneading and by reducing the diameter in this part to the desired size;

characterized in that between the cams bearing faces are produced by internal high pressure forming by expanding the tube;

characterized in that the bearer rings are hardened in a known manner prior to being placed in the internal high pressure forming tool;

characterized in that a gear wheel 4 produced in a separate method I splaced in the internal high pressure forming tool and is secured by the internal high pressure forming step frictionally and/or in an interlocking manner; and

characterized in that after the production of the thickened and/or tapered ends of the cam shaft internal gear teeth and/or a thread is produced by round kneading in an additional method step integrated in an additional method step as part of this method step.

characterized in that the bearer rings have an even wall thickness;

characterized in that the thickness of the bearer rings is variable, the thickness being greatest near the cam tip;

characterized in that the ends of the tube comprise bearing faces, drive and/or control elements 4 and internal and/or external screw threads;

characterized by additional drive and control elements, preferably sprocket or gear wheels, secured by the internal high pressure forming method;

characterized in that the side, facing the tube of the bearer ring has chanfers on both sides on the side facing the tube; and

characterized in that the bearer rings are hardened prior to application on the formed cams.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 3682

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki.

Suzuki shows, as discussed above in the rejections of claims 1, 8, and 14, the cam shaft being produced by internal pressure, comprising the drive and control elements 4 and 5 having at least one radially extending groove 14, and the tube 2 having a groove (as shown in Fig. 5) to accommodate the bearer ring 3, but fails to show the groove formed in the bearer ring.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the tube and bearer ring attachment as shown by Suzuki by having the groove formed in the bearer ring instead of the tube, since such a modification would have involved a mere switching of the parts for attaching. A reversal or rearrangement of parts is generally recognized as being within the level of ordinary skill in the art. *In re Japikse*, 86 USPQ 70 (CCPA 1950).

Response to Arguments

9. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (703) 305-0922. The examiner can normally be reached on Monday - Friday; 9:00 - 6:00.

Art Unit: 3682

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Bucci can be reached on (703) 308-3668. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

chk
September 7, 2003



CHONG H. KIM
PRIMARY EXAMINER